SEQUENCE LISTING

<110> Kingsbury, G.
      Leiby, K.

<120> COMPOSITIONS AND METHODS FOR THE DIAGNOSIS AND
      TREATMENT OF IMMUNE DISORDERS

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<140> 09/899,980
<141> 2001-07-06

<150> 60/155,862
<151> 1999-09-24

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<213> Homo sapiens

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        <213> Mus musculus

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Leu Glu Asn Glu Ala Leu Ile Val Arg Cys Pro Gln Arg Gly Arg Ser
        35                  40                  45
Thr Tyr Pro Val Glu Trp Tyr Tyr Ser Asp Thr Asn Glu Ser Ile Pro
    50                  55                  60
Thr Gln Lys Arg Asn Arg Ile Phe Val Ser Arg Asp Arg Leu Lys Phe
65                  70                  75                  80
Leu Pro Ala Arg Val Glu Asp Ser Gly Ile Tyr Ala Cys Val Ile Arg
                85                  90                  95
Ser Pro Asn Leu Asn Lys Thr Gly Tyr Leu Asn Val Thr Ile His Lys
            100                 105                 110
Lys Pro Pro Ser Cys Asn Ile Pro Asp Tyr Leu Met Tyr Ser Thr Val
        115                 120                 125
Arg Gly Ser Asp Lys Asn Phe Lys Ile Thr Cys Pro Thr Ile Asp Leu
    130                 135                 140
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-4-

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Gln Glu Pro Arg Phe Arg Ala His Arg Ser Tyr Leu Phe Ile Asp Asn
                165                 170                 175
Val Thr His Asp Asp Glu Gly Asp Tyr Thr Cys Gln Phe Thr His Ala
            180                 185                 190
Glu Asn Gly Thr Asn Tyr Ile Val Thr Ala Thr Arg Ser Phe Thr Val
            195                 200                 205
Glu Glu Lys Gly Phe Ser Met Phe Pro Val Ile Thr Asn Pro Pro Tyr
    210                 215                 220
Asn His Thr Met Glu Val Glu Ile Gly Lys Pro Ala Ser Ile Ala Cys
225                 230                 235                 240
Ser Ala Cys Phe Gly Lys Gly Ser His Phe Leu Ala Asp Val Leu Trp
                245                 250                 255
Gln Ile Asn Lys Thr Val Val Gly Asn Phe Gly Glu Ala Arg Ile Gln
                260                 265                 270
Glu Glu Glu Gly Arg Asn Glu Ser Ser Ser Asn Asp Met Asp Cys Leu
    275                 280                 285
Thr Ser Val Leu Arg Ile Thr Gly Val Thr Glu Lys Asp Leu Ser Leu
    290                 295                 300
Glu Tyr Asp Cys Leu Ala Leu Asn Leu His Gly Met Ile Arg His Thr
305                 310                 315                 320
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Ala


        <210> 7
        <211> 567
        <212> PRT
        <213> Mus musculus

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Leu Glu Asn Glu Ala Leu Ile Val Arg Cys Pro Gln Arg Gly Arg Ser
            35                  40                  45
Thr Tyr Pro Val Glu Trp Tyr Tyr Ser Asp Thr Asn Glu Ser Ile Pro
    50                  55                  60
Thr Gln Lys Arg Asn Arg Ile Phe Val Ser Arg Asp Arg Leu Lys Phe
65                  70                  75                  80
Leu Pro Ala Arg Val Glu Asp Ser Gly Ile Tyr Ala Cys Val Ile Arg
                85                  90                  95
Ser Pro Asn Leu Asn Lys Thr Gly Tyr Leu Asn Val Thr Ile His Lys
            100                 105                 110
Lys Pro Pro Ser Cys Asn Ile Pro Asp Tyr Leu Met Tyr Ser Thr Val
            115                 120                 125
Arg Gly Ser Asp Lys Asn Phe Lys Ile Thr Cys Pro Thr Ile Asp Leu
    130                 135                 140
Tyr Asn Trp Thr Ala Pro Val Gln Trp Phe Lys Asn Cys Lys Ala Leu
145                 150                 155                 160
Gln Glu Pro Arg Phe Arg Ala His Arg Ser Tyr Leu Phe Ile Asp Asn
                165                 170                 175
Val Thr His Asp Asp Glu Gly Asp Tyr Thr Cys Gln Phe Thr His Ala
            180                 185                 190
Glu Asn Gly Thr Asn Tyr Ile Val Thr Ala Thr Arg Ser Phe Thr Val
            195                 200                 205
Glu Glu Lys Gly Phe Ser Met Phe Pro Val Ile Thr Asn Pro Pro Tyr
    210                 215                 220
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Ser Ala Cys Phe Gly Lys Gly Ser His Phe Leu Ala Asp Val Leu Trp
            245             250                 255
Gln Ile Asn Lys Thr Val Val Gly Asn Phe Gly Glu Ala Arg Ile Gln
            260             265                 270
Glu Glu Glu Gly Arg Asn Glu Ser Ser Ser Asn Asp Met Asp Cys Leu
        275             280             285
Thr Ser Val Leu Arg Ile Thr Gly Val Thr Glu Lys Asp Leu Ser Leu
        290             295             300
Glu Tyr Asp Cys Leu Ala Leu Asn Leu His Gly Met Ile Arg His Thr
305             310             315                 320
Ile Arg Leu Arg Arg Lys Gln Pro Ile Asp His Arg Ser Ile Tyr Tyr
            325             330                 335
Ile Val Ala Gly Cys Ser Leu Leu Leu Met Phe Ile Asn Val Leu Val
            340             345                 350
Ile Val Leu Lys Val Phe Trp Ile Glu Val Ala Leu Phe Trp Arg Asp
            355             360                 365
Ile Val Thr Pro Tyr Lys Thr Arg Asn Asp Gly Lys Leu Tyr Asp Ala
            370             375                 380
Tyr Ile Ile Tyr Pro Arg Val Phe Arg Gly Ser Ala Ala Gly Thr His
385             390                 395                 400
Ser Val Glu Tyr Phe Val His His Thr Leu Pro Asp Val Leu Glu Asn
            405             410                 415
Lys Cys Gly Tyr Lys Leu Cys Ile Tyr Gly Arg Asp Leu Leu Pro Gly
            420             425                 430
Gln Asp Ala Ala Thr Val Val Glu Ser Ser Ile Gln Asn Ser Arg Arg
            435             440             445
Gln Val Phe Val Leu Ala Pro His Met Met His Ser Lys Glu Phe Ala
        450             455             460
Tyr Glu Gln Glu Ile Ala Leu His Ser Ala Leu Ile Gln Asn Asn Ser
465             470                 475                 480
Lys Val Ile Leu Ile Glu Met Glu Pro Leu Gly Glu Ala Ser Arg Leu
            485             490                 495
Gln Val Gly Asp Leu Gln Asp Ser Leu Gln His Leu Val Lys Ile Gln
            500             505             510
Gly Thr Ile Lys Trp Arg Glu Asp His Val Ala Asp Lys Gln Ser Leu
        515             520             525
Ser Ser Lys Phe Trp Lys His Val Arg Tyr Gln Met Pro Val Pro Glu
        530             535             540
Arg Ala Ser Lys Thr Ala Ser Val Ala Ala Pro Leu Ser Gly Lys Ala
545             550             555                 560
Cys Leu Asp Leu Lys His Phe
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        <210> 8
        <211> 556
        <212> PRT
        <213> Homo sapiens


        <400> 8
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            20              25              30
Ile Val Arg Cys Pro Arg Gln Gly Lys Pro Ser Tyr Thr Val Asp Trp
            35              40              45
Tyr Tyr Ser Gln Thr Asn Lys Ser Ile Pro Thr Gln Glu Arg Asn Arg
    50              55              60
Val Phe Ala Ser Gly Gln Leu Leu Lys Phe Leu Pro Ala Glu Val Ala
65              70              75                  80
```

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```
Asp Ser Gly Ile Tyr Thr Cys Ile Val Arg Ser Pro Thr Phe Asn Arg
                85                      90                      95
Thr Gly Tyr Ala Asn Val Thr Ile Tyr Lys Lys Gln Ser Asp Cys Asn
                100                     105                     110
Val Pro Asp Tyr Leu Met Tyr Ser Thr Val Ser Gly Ser Glu Lys Asn
            115                     120                     125
Ser Lys Ile Tyr Cys Pro Thr Ile Asp Leu Tyr Asn Trp Thr Ala Pro
        130                     135                     140
Leu Glu Trp Phe Lys Asn Cys Gln Ala Leu Gln Gly Ser Arg Tyr Arg
145                     150                     155                     160
Ala His Lys Ser Phe Leu Val Ile Asp Asn Val Met Thr Glu Asp Ala
                165                     170                     175
Gly Asp Tyr Thr Cys Lys Phe Ile His Asn Glu Asn Gly Ala Asn Tyr
                180                     185                     190
Ser Val Thr Ala Thr Arg Ser Phe Thr Val Lys Asp Glu Gln Gly Phe
            195                     200                     205
Ser Leu Phe Pro Val Ile Gly Ala Pro Ala Gln Asn Glu Ile Lys Glu
        210                     215                     220
Val Glu Ile Gly Lys Asn Ala Asn Leu Thr Cys Ser Ala Cys Phe Gly
225                     230                     235                     240
Lys Gly Thr Gln Phe Leu Ala Ala Val Leu Trp Gln Leu Asn Gly Thr
                245                     250                     255
Lys Ile Thr Asp Phe Gly Glu Pro Arg Ile Gln Gln Glu Glu Gly Gln
                260                     265                     270
Asn Gln Ser Phe Ser Asn Gly Leu Ala Cys Leu Asp Met Val Leu Arg
            275                     280                     285
Ile Ala Asp Val Lys Glu Glu Asp Leu Leu Leu Gln Tyr Asp Cys Leu
        290                     295                     300
Ala Leu Asn Leu His Gly Leu Arg Arg His Thr Val Arg Leu Ser Arg
305                     310                     315                     320
Lys Asn Pro Ile Asp His His Ser Ile Tyr Cys Ile Ile Ala Val Cys
                325                     330                     335
Ser Val Phe Leu Met Leu Ile Asn Val Leu Val Ile Ile Leu Lys Met
            340                     345                     350
Phe Trp Ile Glu Ala Thr Leu Leu Trp Arg Asp Ile Ala Lys Pro Tyr
        355                     360                     365
Lys Thr Arg Asn Asp Gly Lys Leu Tyr Asp Ala Tyr Val Val Tyr Pro
        370                     375                     380
Arg Asn Tyr Lys Ser Ser Thr Asp Gly Ala Ser Arg Val Glu His Phe
385                     390                     395                     400
Val His Gln Ile Leu Pro Asp Val Leu Glu Asn Lys Cys Gly Tyr Thr
                405                     410                     415
Leu Cys Ile Tyr Gly Arg Asp Met Leu Pro Gly Glu Asp Val Val Thr
                420                     425                     430
Ala Val Glu Thr Asn Ile Arg Lys Ser Arg Arg His Ile Phe Ile Leu
            435                     440                     445
Thr Pro Gln Ile Thr His Asn Lys Glu Phe Ala Tyr Glu Gln Glu Val
        450                     455                     460
Ala Leu His Cys Ala Leu Ile Gln Asn Asp Ala Lys Val Ile Leu Ile
465                     470                     475                     480
Glu Met Glu Ala Leu Ser Glu Leu Asp Met Leu Gln Ala Glu Ala Leu
            485                     490                     495
Gln Asp Ser Leu Gln His Leu Met Lys Val Gln Gly Thr Ile Lys Trp
            500                     505                     510
Arg Glu Asp His Ile Ala Asn Lys Arg Ser Leu Asn Ser Lys Phe Trp
        515                     520                     525
Lys His Val Arg Tyr Gln Met Pro Val Pro Ser Lys Ile Pro Arg Lys
    530                     535                     540
Ala Ser Ser Leu Thr Pro Leu Ala Ala Gln Lys Gln
545                     550                     555
```

<210> 9
<211> 328
<212> PRT
<213> Homo sapiens

<400> 9
Met Gly Phe Trp Ile Leu Ala Ile Leu Thr Ile Leu Met Tyr Ser Thr
1   5   10   15
Ala Ala Lys Phe Ser Lys Gln Ser Trp Gly Leu Glu Asn Glu Ala Leu
            20   25   30
Ile Val Arg Cys Pro Arg Gln Gly Lys Pro Ser Tyr Thr Val Asp Trp
        35   40   45
Tyr Tyr Ser Gln Thr Asn Lys Ser Ile Pro Thr Gln Glu Arg Asn Arg
    50   55   60
Val Phe Ala Ser Gly Gln Leu Leu Lys Phe Leu Pro Ala Glu Val Ala
65   70   75   80
Asp Ser Gly Ile Tyr Thr Cys Ile Val Arg Ser Pro Thr Phe Asn Arg
                85   90   95
Thr Gly Tyr Ala Asn Val Thr Ile Tyr Lys Lys Gln Ser Asp Cys Asn
            100   105   110
Val Pro Asp Tyr Leu Met Tyr Ser Thr Val Ser Gly Ser Glu Lys Asn
        115   120   125
Ser Lys Ile Tyr Cys Pro Thr Ile Asp Leu Tyr Asn Trp Thr Ala Pro
    130   135   140
Leu Glu Trp Phe Lys Asn Cys Gln Ala Leu Gln Gly Ser Arg Tyr Arg
145   150   155   160
Ala His Lys Ser Phe Leu Val Ile Asp Asn Val Met Thr Glu Asp Ala
                165   170   175
Gly Asp Tyr Thr Cys Lys Phe Ile His Asn Glu Asn Gly Ala Asn Tyr
            180   185   190
Ser Val Thr Ala Thr Arg Ser Phe Thr Val Lys Asp Glu Gln Gly Phe
        195   200   205
Ser Leu Phe Pro Val Ile Gly Ala Pro Ala Gln Asn Glu Ile Lys Glu
    210   215   220
Val Glu Ile Gly Lys Asn Ala Asn Leu Thr Cys Ser Ala Cys Phe Gly
225   230   235   240
Lys Gly Thr Gln Phe Leu Ala Ala Val Leu Trp Gln Leu Asn Gly Thr
                245   250   255
Lys Ile Thr Asp Phe Gly Glu Pro Arg Ile Gln Gln Glu Glu Gly Gln
            260   265   270
Asn Gln Ser Phe Ser Asn Gly Leu Ala Cys Leu Asp Met Val Leu Arg
    275   280   285
Ile Ala Asp Val Lys Glu Glu Asp Leu Leu Leu Gln Tyr Asp Cys Leu
    290   295   300
Ala Leu Asn Leu His Gly Leu Arg Arg His Thr Val Arg Leu Ser Arg
305   310   315   320
Lys Asn Pro Ser Lys Glu Cys Phe
                325

<210> 10
<211> 1680
<212> DNA
<213> Homo sapiens

<400> 10
cttagctccg tcactgactc caagttcatc ccctctgtct ttcagtttgg ttgagatata   60
ggctactctt cccaactcag tcttgaagag tatcaccaac tgcctcatgt gtggtgacct   120
tcactgttgt atgccagtga ctcatctgga gtaatctcaa caacgagtta ccaatacttg   180
ctcttgattg ataaacagaa tggggttttg gatcttagca attctcacaa ttctcatgta   240
ttccacagca gcaaagttta gtaaacaatc atggggcctg gaaaatgagg ctttaattgt   300
aagatgtcct agacaaggaa aacctagtta caccgtggat tggtattact cacaaacaaa   360

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```
caaaagtatt cccactcagg aaagaaatcg tgtgtttgcc tcaggccgac ttctgaagtt      420
tctaccagct gaagttgctg attctggtat ttatacctgt attgtcagaa gtcccacatt      480
caataggact ggatatgcga atgtcaccat atataaaaaa caatcagatt gcaatgttcc      540
agattatttg atgtattcaa cagtatctgg atcagaaaaa aattccaaaa tttattgtcc      600
taccattgac ctctacaact ggacagcacc tcttgagtgg tttaagaatt gtcaggctct      660
tcaaggatca aggtacaggg cgcacaagtc atttttggtc attgataatg tgatgactga      720
ggacgcaggt gattacacct gtaaatttat acacaatgaa aatggagcca attatagtgt      780
gacggcgacc aggtccttca cggtcaaggt ttggtgtcag agtttctgca aattaaaaaa      840
gagcttaatc tttagtaata ctcattggat tcaaagtcta atgagaggct ttgtgatggt      900
atactatggt gtacataaat gttgtcgagt ggtttttaat ctttgtttgc aatactttca      960
acatcatcaa tggccttgaa tgagcaaggc ttttctctgt ttccagtaat cggagcccct     1020
gcacaaatg aaataaagga agtggaaatt ggaaaaaacg caaacctaac ttgctctgct      1080
tgttttggaa aaggcactca gttcttggct gccgtcctgt ggcagcttaa tggaacaaaa     1140
attacagact ttggtgaacc aagaattcaa caagaggaag ggcaaaatca agtttcagc      1200
aatgggctgg cttgtctaga catggtttta agaatagctg acgtgaagga agaggattta     1260
ttgctgcagt acgactgtct ggccctgaat ttgcatggct tgagaaggca caccgtaaga     1320
ctaagtagga aaaatccaag taaggagtgt ttctgagact ttgatcacct gaactttctc     1380
tagcaagtgt aagcagaatg gagtgtggtt ccaagagatc catcaagaca atgggaatgg     1440
cctgtgccat aaaatgtgct tctcttcttc gggatgttgt ttgctgtctg atctttgtag     1500
actgttcctg tttgctggga gcttctctgc tgcttaaatt gttcgtcctc ccccactccc     1560
tcctatcgtt ggtttgtcta gaacactcag ctgcttcttt ggtcatcctt gttttctaac     1620
tttatgaact ccctctgtgt cactgtatgt gaaaggaaat gcaccaacaa ccgaaaactg     1680
```

        <210> 11
        <211> 259
        <212> PRT
        <213> Homo sapiens

        <400> 11
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Met Gly Phe Trp Ile Leu Ala Ile Leu Thr Ile Leu Met Tyr Ser Thr
1               5                   10                  15
Ala Ala Lys Phe Ser Lys Gln Ser Trp Gly Leu Glu Asn Glu Ala Leu
            20                  25                  30
Ile Val Arg Cys Pro Arg Gln Gly Lys Pro Ser Tyr Thr Val Asp Trp
        35                  40                  45
Tyr Tyr Ser Gln Thr Asn Lys Ser Ile Pro Thr Gln Glu Arg Asn Arg
    50                  55                  60
Val Phe Ala Ser Gly Arg Leu Leu Lys Phe Leu Pro Ala Glu Val Ala
65                  70                  75                  80
Asp Ser Gly Ile Tyr Thr Cys Ile Val Arg Ser Pro Thr Phe Asn Arg
                85                  90                  95
Thr Gly Tyr Ala Asn Val Thr Ile Tyr Lys Lys Gln Ser Asp Cys Asn
                100                 105                 110
Val Pro Asp Tyr Leu Met Tyr Ser Thr Val Ser Gly Ser Glu Lys Asn
            115                 120                 125
Ser Lys Ile Tyr Cys Pro Thr Ile Asp Leu Tyr Asn Trp Thr Ala Pro
    130                 135                 140
Leu Glu Trp Phe Lys Asn Cys Gln Ala Leu Gln Gly Ser Arg Tyr Arg
145                 150                 155                 160
Ala His Lys Ser Phe Leu Val Ile Asp Asn Val Met Thr Glu Asp Ala
                165                 170                 175
Gly Asp Tyr Thr Cys Lys Phe Ile His Asn Glu Asn Gly Ala Asn Tyr
                180                 185                 190
Ser Val Thr Ala Thr Arg Ser Phe Thr Val Lys Val Trp Cys Gln Ser
            195                 200                 205
Phe Cys Lys Leu Lys Lys Ser Leu Ile Phe Ser Asn Thr His Trp Ile
    210                 215                 220
Gln Ser Leu Met Arg Gly Phe Val Met Val Tyr Tyr Gly Val His Lys
225                 230                 235                 240
Cys Cys Arg Val Val Phe Asn Leu Cys Leu Gln Tyr Phe Gln His His
                245                 250                 255
```

Gln Trp Pro

```
<210> 12
<211> 1210
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (84)...(557)

<400> 12
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gtcgacccac gcgtccgccc acgcgtccgc tggagtaatc tcaacaacga gttaccaata      60
cttgctcttg attgataaac aga atg ggg ttt tgg atc tta gca att ctc aca     113
                          Met Gly Phe Trp Ile Leu Ala Ile Leu Thr
                           1               5                  10

att ctc atg tat tcc aca gca gca aag ttt agt aaa caa tca tgg ggc        161
Ile Leu Met Tyr Ser Thr Ala Ala Lys Phe Ser Lys Gln Ser Trp Gly
                 15                  20                  25

ctg gaa aat gag gct tta att gta aga tgt cct aga caa gga aaa cct        209
Leu Glu Asn Glu Ala Leu Ile Val Arg Cys Pro Arg Gln Gly Lys Pro
             30                  35                  40

agt tac acc gtg gat tgg tat tac tca caa aca aac aaa agt att ccc        257
Ser Tyr Thr Val Asp Trp Tyr Tyr Ser Gln Thr Asn Lys Ser Ile Pro
             45                  50                  55

act cag gaa aga aat cgt gtg ttt gcc tca ggc caa ctt ctg aag ttt        305
Thr Gln Glu Arg Asn Arg Val Phe Ala Ser Gly Gln Leu Leu Lys Phe
    60                  65                  70

cta cca gct gca gtt gct gat tct ggt att tat acc tgt att gtc aga        353
Leu Pro Ala Ala Val Ala Asp Ser Gly Ile Tyr Thr Cys Ile Val Arg
75                  80                  85                  90

agt ccc aca ttc aat agg act gga tat gcg aat gtc acc ata tat aaa        401
Ser Pro Thr Phe Asn Arg Thr Gly Tyr Ala Asn Val Thr Ile Tyr Lys
                 95                  100                 105

aaa caa tca gat tgc aat gtt cca gat tat ttg atg tat tca aca gta        449
Lys Gln Ser Asp Cys Asn Val Pro Asp Tyr Leu Met Tyr Ser Thr Val
             110                 115                 120

tct gga tca gaa aaa aat tcc aaa att tat tgt cct acc att gac ctc        497
Ser Gly Ser Glu Lys Asn Ser Lys Ile Tyr Cys Pro Thr Ile Asp Leu
         125                 130                 135

tac aac tgg aca gca cct ctt gag tgg ttt aag atg agc aag gct ttt        545
Tyr Asn Trp Thr Ala Pro Leu Glu Trp Phe Lys Met Ser Lys Ala Phe
    140                 145                 150

ctc tgt ttc cag taatcggagc ccctgcacaa aatgaaataa aggaagtgga           597
Leu Cys Phe Gln
155

aattggcact cagttcttgg ctgccgtcct gtggcagctt aatggaacaa aaattacaga     657
ctttggtgaa ccaagaattc aacaagagga agggcaaaat caaagtttca gcaatgggct     717
ggcttgtcta gacatggttt taagaatagc tgacgtgaag gaagaggatt tattgctgca     777
```

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```
gtacgactgt ctggccctga atttgcatgg cttgagaagg cacaccgtaa gactaagtag      837
gaaaaatcca agtaaggagt gtttctgaga ctttgatcac ctgaactttc tctagcaagt      897
gtaagcagaa tggagtgtgg ttccaagaga tccatcaaga caatgggaat ggcctgtgcc      957
ataaaatgtg cttctcttct cgggatgtt gtttgctgtc tgatctttgt agactgttcc     1017
tgtttgctgg gagcttctct gctgcttaaa ttgttcgtcc tcccccactc cctcctatcg     1077
ttggtttgtc tagaacactc agctgcttct ttggtcatcc ttgtttctta actttatgaa     1137
ctccctctgt gtcactgtat gtgaaaggaa atgcaccaac aaccgtaaaa aaaaaaaaaa     1197
aagggcggcc gct                                                         1210
```

        <210> 13
        <211> 158
        <212> PRT
        <213> Homo sapiens

        <400> 13
```
Met Gly Phe Trp Ile Leu Ala Ile Leu Thr Ile Leu Met Tyr Ser Thr
 1               5                   10                  15
Ala Ala Lys Phe Ser Lys Gln Ser Trp Gly Leu Glu Asn Glu Ala Leu
            20                  25                  30
Ile Val Arg Cys Pro Arg Gln Gly Lys Pro Ser Tyr Thr Val Asp Trp
        35                  40                  45
Tyr Tyr Ser Gln Thr Asn Lys Ser Ile Pro Thr Gln Glu Arg Asn Arg
    50                  55                  60
Val Phe Ala Ser Gly Gln Leu Leu Lys Phe Leu Pro Ala Ala Val Ala
65                  70                  75                  80
Asp Ser Gly Ile Tyr Thr Cys Ile Val Arg Ser Pro Thr Phe Asn Arg
                85                  90                  95
Thr Gly Tyr Ala Asn Val Thr Ile Tyr Lys Lys Gln Ser Asp Cys Asn
            100                 105                 110
Val Pro Asp Tyr Leu Met Tyr Ser Thr Val Ser Gly Ser Glu Lys Asn
            115                 120                 125
Ser Lys Ile Tyr Cys Pro Thr Ile Asp Leu Tyr Asn Trp Thr Ala Pro
    130                 135                 140
Leu Glu Trp Phe Lys Met Ser Lys Ala Phe Leu Cys Phe Gln
145                 150                 155
```

        <210> 14
        <211> 18
        <212> DNA
        <213> Artificial Sequence

        <220>
        <223> sense primer

        <400> 14
```
ttgccataga gagacctc                                                      18
```

        <210> 15
        <211> 19
        <212> DNA
        <213> Artificial Sequence

        <220>
        <223> antisense primer

        <400> 15
```
tgctgtccaa ttatacagg                                                     19
```

        <210> 16
        <211> 22
        <212> DNA

<213> Artificial Sequence

<220>
<223> sense primer

<400> 16
gaacacggca ttgtcactaa ct   22

<210> 17
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer

<400> 17
cctcatagat gggcactgtg t   21

<210> 18
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer

<400> 18
tgtgacggcg accaggt   17

<210> 19
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer

<400> 19
tctctgtttc cagtaatcgg agc   23

<210> 20
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> TaqMan probe

<400> 20
ttcacggtca aggatgagca agcctt   26

<210> 21
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer

<400> 21

cacccccact gaaaaagatg a   21

<210> 22
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer

<400> 22
cttaactatc ttgggctgtg acaaag   26

<210> 23
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> TaqMan probe

<400> 23
tatgcctgcc gtgtgaacca cgtg   24

<210> 24
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> 5' oligonucleotide

<400> 24
ccgcgggtac cagtaaatcg tcctggggtg g   31

<210> 25
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> 3' oligonucleotide

<400> 25
aaataaagga tccctacatc cagcaactat gtagta   36

<210> 26
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> 5' oligonucleotide

<400> 26
gaacacacta gtactatcct gtgccattgc catagaga   38

<210> 27
<211> 44
<212> DNA
<213> Artificial Sequence

```
<220>
<223> 3' oligonucleotide

<400> 27
ggaatattgg gcccttggat cccaagtctg cacacctgca ctcc                    44


<210> 28
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> 5' oligonucleotide

<400> 28
gtaaatcgtc ctggggtctg g                                            21


<210> 29
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> 3' oligonucleotide

<400> 29
ccttctgata acacaagcat aaatc                                        25


<210> 30
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 30
acggagggca gtaaatc                                                 17


<210> 31
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 31
cagccaagaa gtgagagc                                                18


<210> 32
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 32
tgttgccgga atccagcctc ag                                           22
```

```
<210> 33
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 33
gtcccccacc cccagataca acc                                              23

<210> 34
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> linker

<400> 34
Ala Ala Ala Asp Pro
1               5
```